

CLAIMS

1. A process for manufacturing D-galactose from an oligosaccharide containing
5 legume composition, comprising the steps of:
- a) subjecting an oligosaccharide containing legume composition, wherein at least 90% of the total monosaccharide elements of the oligosaccharide are D-galactose in chemical combination with D-glucose and/or D-fructose, to one or more treatments, resulting in a preparation comprising at least 30% of said oligosaccharides on dry weight basis
- 10 b) hydrolyzing the said oligosaccharides of the preparation obtained in a) into mainly monosaccharides.
2. A process according to claim 1, wherein at least 60% of the oligosaccharides of the preparation obtained in a) are hydrolyzed into monosaccharides.
3. A process according to claim 1, wherein at least 70% of the oligosaccharides
15 of the preparation obtained in a) are hydrolyzed into monosaccharides.
4. A process according to claim 1, wherein at least 80% of the oligosaccharides of the preparation obtained in a) are hydrolyzed into monosaccharides.
5. A process according to any of claims 1-4, wherein the treatment of the oligosaccharide containing composition according to step a) results in a preparation
20 comprising at least 40% oligosaccharides on dry weight basis.
6. A process according to any of claims 1-5, wherein the treatment of oligosaccharide containing composition according to step a) results in a preparation comprising at least 80% oligosaccharides on dry weight basis.
7. A process according to any of claims 1-6, wherein the legume plant source
25 for oligosaccharides is soy, rape or sunflower or a mixture thereof.
8. A process according to any of claims 1-7, wherein the oligosaccharides are extracted from defatted beans, peas or oilseeds, preferably from defatted soybean preparations, defatted rapeseed preparations, defatted sunflower seed preparations or mixtures thereof.
- 30 9. A process according to any of claims 1-8, wherein the oligosaccharides consist of at least 90% of oligosaccharides selected from any of the following group as such or in combination, said group consisting of melibiose, manninotriose, raffinose, stachyose, verbascose.

10. A process according to any of claims 1-9, wherein the oligosaccharides are extracted using an aqueous solution, with or without water-soluble organic solvents and/or with or without dissolved salts and/or with or without acids.

11. A process according to claim 10, wherein the aqueous solution is water.

12. A process according to any of claims 1-11, wherein the treatment of oligosaccharide containing composition according to step a) comprises the removal of non-saccharides.

13. A process according to any of claims 1-12, wherein the treatment of oligosaccharide containing composition according to step a) comprises extraction followed by separation of the resulting soluble and insoluble phases and subjecting the soluble phase to further treatment.

14. A process according to any of claims 1-13, wherein the treatment of oligosaccharide containing composition according to step a) comprises acid precipitation followed by separation of the resulting soluble and insoluble phases and subjecting the soluble phase to further treatment.

15. A process according to any of claims 1-14, wherein the treatment of oligosaccharide containing composition according to step a) comprises use of membrane separation techniques for removing non saccharides.

16. A process according to claim 15, wherein the membrane separation technique used is ultrafiltration.

17. A process according to claim 16, wherein the ultrafiltration membrane used has a theoretical molecular weight cut-off of about 1,000 to about 200,000 Dalton, preferably 5,000-20,000.

18. A process according to any of claims 1-17, wherein the hydrolysis of oligosaccharides is accomplished using enzymatic hydrolysis.

19. A process according to claim 18 wherein the enzymatic hydrolysis is accomplished by applying an enzyme having the ability to break 1-6- α -galactosidic linkage.

20. A process according to claim 19 wherein the enzymatic hydrolysis is accomplished by applying an enzyme having the ability to break 1-2- β -fructofuranosidic linkage.

21. A process according to claim 20 or 21, wherein the enzymatic hydrolysis is accomplished by applying a mixture of enzymes having the ability to break 1-6- α -galactosidic linkage and 1-2- β -fructofuranosidic linkage.

22. A process according to any of claims 1-21, comprising one or more further treatments following step b) for increasing the D-galactose concentration.

23. A process according to claim 22 wherein the further treatment comprises the removal of components other than D-galactose.

5 24. A process according to claim 22 or 23, wherein the further treatment comprises the removal of non-saccharides.

25. A process according to any of claims 22-24, wherein the further treatment is a chromatographic treatment.

10 26. A process according to any of claims 22-25, wherein the further treatment comprises the removal of other saccharides.

27. A process according to any of claims 22-26, wherein the further treatment comprises the removal of D-glucose and/or D-fructose.

28. A process according to any of claims 1-27, wherein the hydrolysis of oligosaccharides occurs at a holding temperature of 10° to 90°C for 5 to 250 minutes.

15 29. A process according to any of claims 1-28, wherein the hydrolysis of oligosaccharides occurs at a holding temperature of 25° to 50°C for 10 to 100 minutes.

30. A process according to any of claims 1-29, resulting in a composition comprising at least 5 % D-galactose on a dry weight basis.

20 31. A process according to any of claims 1-30, resulting in a composition comprises at least 10 % D-galactose on a dry weight basis.

32. A process according to any of claims 1-31, resulting in a composition comprises at least 40 % D-galactose on a dry weight basis.

33. A process according to any of claims 1-32, resulting in a composition comprises at least 90 % D-galactose on a dry weight basis.

25 34. A process according to any of the preceding claims carried out at a scale at least equivalent to pilot scale, preferably equivalent to industrial scale.